



# The Macrogram

Hartford Chapter of the ASM International  
Build on our Strengths - Leverage our Diversity - Network to Succeed

## MONTHLY MEETING – TOPIC

January 10, 2006

**Topic: Hydrogen Economy and Materials Issues**

**Speaker:** Dr. Leon Shaw, FASM

Professor, Materials Science and  
Engineering - UConn

**Directions: Cugino's**, 1076 Main Street, Newington, CT 06111, Ph: (860) 665-0881 Main Street is Route 176.

**Cugino's** is south of Route 175 (Cedar Street). Use alleyway to parking area in rear.

**Agenda:**

Cocktails: 5:30-6:30 PM

Dinner: 6:30-7:30 PM

Program: 7:30-8:30 PM

**Program Charges:**

Regular Members - \$28.00

Retirees - \$15.00

Full Time Students - \$15.00

**Technical Chairperson:** Arnie Grot

**Reservations:** Call Shirley at Dynamic Metals (860) 583-3336 by noon January 6th. **Thanks!**

**Abstract:**

A transition to hydrogen as a major fuel in the next 50 years could significantly change the U.S. energy economy, reducing air emissions, and expanding domestic energy resources. However, many technical, economic, and infrastructure barriers need to be overcome. This presentation provides a brief overview of the key technical barriers associated with hydrogen production, hydrogen storage, and fuel cell technology. The work performed at UConn to develop novel solid state hydrogen storage materials will be highlighted as one of the specific examples in our journey to achieve the Department of Energy (DOE) FreedomCAR (www.eere.energy.gov/vehiclesandfuels/) target and to make the hydrogen economy a reality.



**Bio:**



Prof. Leon L. Shaw received a B.S. in Materials Engineering and a Master of Engineering in Mechanical Engineering from Fuzhou University (China), as well as a Master of Science and a Ph.D. in Materials Science and Engineering with a Minor in Mechanics and Engineering Science from the University of Florida.

He worked as a Research Scientist at Systran Corporation and as a Visiting Scientist at Air Force Wright Laboratory for 2 years before joining the University of Connecticut faculty in 1995.

His teaching and research interests are in processing and mechanical properties of nanostructured materials, solid freeform fabrication, and energy materials for hydrogen storage and fuel cell applications. He is a Fellow of ASM International, and a Fellow of the Academy of Materials and Manufacturing Engineering, Poland. He has authored or co-authored over 160 publications (2 edited books, 5 book chapters, 92 archival refereed journal articles, and 64 conference proceedings), and made 150 plus conference presentations including 33 invited talks or keynote presentations. He holds US patents for large quantity production of nanostructured materials. He is a guest editor for several journals including Metallurgical and Materials Transactions and Materials Science and Engineering. He also serves as a reviewer for federal funding agencies (e.g., NSF, DOE, AFOSR and CRDF) and leading journals in the field. He is an executive committee member of ASM Nanomaterials Technology Task Force and the Chairman of ASM Materials Synthesis and Processing Committee. He is cited in Who's Who in America and Who's Who in Science & Engineering. He is also an award-winning faculty advisor to the UConn ASM/TMS Student Chapter from 1998 to 2004 with the following international awards.

- ASM/TMS Chapters of Excellence for Technical Programming in 1999
- ASM/TMS Chapters of Excellence for Technical Programming in 2001
- ASM/TMS Chapters of Excellence for Promotion of the Field in 2003
- The First Place Winner of the 2003 and 2004 ASM, ISS, TMS World Materials Outreach Award investigative science in pre K through 12th grade.

**THE ASM HARTFORD/UCONN MATERIALS SCIENCE AND ENGINEERING INTERNSHIP PROGRAM**

is designed to introduce students interested in a materials science and engineering career to materials applications in the world and to offer practical experience in the industry's day-to-day operations.

**ASM Members, please help the future of the materials industry by asking your company to sponsor an Internship for a Materials and Science Engineering undergraduate.**

Contact Stu Weiss, (860) 731-6736, for more information on how your company can participate in the Internship Program. *Students can contact Dr. Ramprasad at 486-4102 about internship opportunities.*